MatrixPRO-II

HD/3G SDI series

User manual

Rev. 1.1

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Company Address

Barco, Inc.
11101 Trade Center Drive

Rancho Cordova,

California 95670 USA

Phone: (916) 859-2500

Fax: (916) 859-2515

Barco N.V.

Noordlaan 5 8520

Kuurne

BELGIUM

Phone: +32 56.36.82.11

Fax: +32 56.35.16.51

Website: www.barco.com

Technical Support

Customer Service Portal — **www.barco.com/esupport**
(866) 374-7878 — Events (24/7)
(866) 469-8036 — Digital Cinema (24/7)

Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do not remove panels or covers

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source

This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use of the Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use of the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Terms in This Manual and Equipment Marking

Warning

Highlights an operating procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to or death of
personnel.

NOTE	Highlights an essential operating procedure, condition or Statement

Caution

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

AVETISSEMENT!

Le point d´exclamation dans un triangle equilatéral signale à alerter l´utilisateur qu´il y a des instructions d´operation et d´entretien tres importantes dans la litérature qui accompagne l´appareil.

VORSICHT

Ein Ausrufungszeichen innerhalb eines gleichwinkeligen Dreiecks dient dazu, den Benutzer auf wichtige Bedienungs-und Wartungsanweisungen in der Dem Great beiliegenden Literatur aufmerksam zu machen.

Change History

	Date	ECP #	Description	Approved By
0.0	5/20/10	578607	User's Guide	GKOU
1.1	3/09/11	586286	Added default IP address Added interface commands appendix Added MP-II 3G Configuration Tool	GKOU

Contents

Product overview

This User Manual presents the features, installation and operation procedures of (3G/HD/SD-SDI) routers of the Barco MatrixPRO-II series.

- Router models available: 8x8, 16x16 and 32x32
- Communication: TCP/IP and RS-232
- Programmable multi- single- and dual bus control panels
- Ultra Slim frame depth
- Low Power, high reliability design
- Redundant power supply system with front indicators
- Future proof and flexible product range

Barco's MatrixPRO-II 3G/HS/SD-SDI series is ideal for general events, fixed installations, on-air routing, mobile outside broadcast applications and sophisticated A/V applications.

1.1   Product versions

The following versions of the Barco MatrixPRO-II 3G/HD/SD-SDI Routers are available:

1RU, Depth 5cm
R9004661	8x8 HD/3G Digital Video Router
	Multirate: 270Mbps-2.97Gbps
	Router partitioning.
	Reclocking.
R9004660	16x16 HD/3G Digital Video Router
	Multirate: 270Mbps-2.97Gbps
	Router partitioning.
	Reclocking.

2RU, depth 5cm:
R9004662	32x32 HD/3G Digital Video Router
	Multirate: 270Mbps-2.97Gbps
	Router partitioning.
	Reclocking.

2   Specifications

2.1   Mechanics

Dimensions: -   HxWxD = 44x483x50mm, (19", 1RU);
                                       -          HxWxD = 88x483x50mm, (19", 2RU);
Safety/Emission Standards: Compliant with CE EN55103-1 and 2.

2.1.1 Weight and power consumption

Device	Weight	Current, +15V	Current, -15V	Power
R9004661	1.3 kg	900 mA	2 mA	14 W
R9004660	1.4 kg	1273 mA	4 mA	19 W
R9004662	2.2 kg	1302 mA	1035 mA	35 W
R9871081	0.35 kg	N/A (AC Mains)		

2.2   Power Supply

SL-PWR-40   40W Power Supply Unit
AC Supply voltage range: 100-240VAC, 50-60Hz,
                               Max 1.6A
AC Mains connector: IEC 320.
DC output: +15V, max. 2.2A
                               -15V, max 1.35A
                               Maximum 43W
DC connector: DB9, female.
Status monitoring: Via LED in front of the router/CP.
Safety standards: Compliant with CE EN60950, UL-1950/CSA22.2.

2.3   Control

Function	Description	Connector
Serial Port	RS-232	1xDB9, female
NCB	N/A	2x RJ45
Ethernet port:	10/100BaseT Ethernet bus for external router control.	1x RJ45
Synchronization	o Analog Black & Burst, looped. Both PAL and NTSC supported. Tri-Level, Looped. For HD signal formats only.	1xBNC

2.4   Video specifications

Supported formats:

Broadcast:	-	270Mbps – 2.97Gbps;
	-	DVB-ASI, SMPTE 259M, SMPTE 292M, SMPTE 424M;
	-	2K, 2048x1556/23.98 and 24.

Electrical signal inputs:

Standard:	SMPTE 259M / SMPTE 292M / SMPTE 424M.
Data rate:	270Mbps – 1.485Gbps / 2.97Gbps.
Connector:	75 ohm BNC female.
Impedance:	75 ohm nominal.

Return loss:	-	> 15dB (5MHz-1.485Ghz);
	-	> 10dB (1.5GHz – 3GHz).
Cable equalization,	-	Automatic up to 70m @ 2.97Gbps, typical Belden 1694A;
	-	Automatic up to 100m @ 1.485Gbps, typical Belden 1694A.
	-	Automatic up to 300m @ 270Mbps, typical Belden 8281.

Electrical signal outputs:

| Connector: | 75 ohm BNC female. |
| Impedance: | 75 ohm nominal. |

Return loss:	-	> 15dB (5MHz-1.485Ghz);
	-	> 10dB (1.5GHz – 3GHz).
Signal level:	800mVp-p ±10%.
Rise/fall time:	20% - 80%
	-	SD limit: 0.4ns – 1.5ns, < 0.5ns rise/fall variation;
	-	HD limit: < 270ps, < 100ps rise/fall variation;
	-	3G-HD limit: < 135ps, < 50ps rise/fall variation;
Amplitude overshoot:	< 10%.
Signal polarity:	Non-inverting electrical with respect to inputs.

Signal transition:

Timing jitter:	-	SD: < 0.2 UI
	-	3G-HD / HD: < 1 UI.
Alignment jitter:	-	SD: < 0.2 UI
	-	3G-HD / HD: < 0.2 UI.

Reference inputs:

Number of inputs:	1
Connector:	75 ohm BNC female, loop-thru.
Return loss:	>40dB (100 kHz – 5 MHz); >35dB (5-10 MHz).
Signal format:	NTSC or PAL Black&Burst or HD Tri-Level according to SMPTE 274M, SMPTE 276M.
Signal level:	Nominal 1.0Vp-p.

Field selectivity: Field 1.
Timing range: • SD, PAL: within clock-intervals (27MHz) 565 – 835 line 6
                       • SD, NTSC: within clock-intervals (27MHz) 565 – 835 line 10.
                       • HD Tri-Level: 1280x720: within clock-intervals (148.5MHz) 455 –
                         780 line 7
                       • HD Tri-Level: 1920x1080: within clock-intervals (148.5MHz) 625 –
                         1070 line 7.

2.5 Connection details

The MatrixPRO-II routers have the following service connections on the rear of each product:

SYNC: Synchronization signal (in). Black burst/composite/tri-level sync
                         reference input with passive loop-through for vertical interval
                         switching.
LOOP: Synchronization signal (out). Loop-through of SYNC input.
NCB IN/OUT   N/A.
ETHERNET: 10/100Base-T Ethernet bus for external router control.
RS 232:   RS-232 for external control protocols.
POWER A: ±15VDC power connector.
POWER B: ±15VDC power connector, redundant supply.
CONFIGURATION: Configurations switch. See Chapter 3 for further descriptions.

2.5.1 Power Supply pinout

The DB9 power pinout for MatrixPRO-II routers is as follows;

Pin #	Description
1	GND
2	Not connected
3	Not connected
4	+15VDC
5	Not connected
6	Not connected
7	Not connected
8	-15VDC
9	Not connected

3   Configuration

This chapter provides an overview of the configuration options that are available on the Barco MatrixPRO-II 3G/HD/SD-SDI Routers.

3.1   SW1 – SW4: Address/Level Not Used

3.2   SW5-SW6: Router mode

3.2.1 Router mode on NxN square routers

The nxn square Barco MatrixPRO-II A/V router allows switching in different modes:

Router layers	8x8 router	16x16 router	32x32 router
1 layer	8x8	16x16	32x32
2 layers	4x4	8x8	16x16
3 layers	N.A.	5x5	10x10
4 layers	2x2	4x4	8x8

Switches 5 - 6 on the configuration switch set the router's mode. The Router Management System software must be configured according to the mode chosen on the router.

The modes can be switched according to the following pattern:

SW 5	SW 6	Router mode
OFF	OFF	1 router layer
OFF	**ON**	2 router layers
ON	OFF	3 router layers
ON	**ON**	4 router layers

Default mode is 1 router layer.

Based on the configuration above, the I/O is connected to the router according to the following scheme, where the physical limitations depend on the type of router that is purchased (8x8, 16x16, 32x32):

– **1 layer:**
   I/O is connected according to information on the rear of the router.

- **2 layers, based on an 8x8 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
Layer 2	**Input**	**Layer 2**	**Output**
1	5	1	5
2	6	2	6
3	7	3	7
4	8	4	8

- **2 layers, based on a 16x16 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
…	…	…	…
8	8	8	8
Layer 2	**Input**	**Layer 2**	**Output**
1	9	1	9
2	10	2	10
3	11	3	11
4	12	4	12
…	…	…	…
8	16	8	16

- **2 layers, based on a 32x32 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
…	…	…	…
16	16	16	16
Layer 2	**Input**	**Layer 2**	**Output**
1	17	1	17
2	18	2	18
3	19	3	19
4	20	4	20
…	…	…	…
16	32	16	32

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− **3 layers, based on a 16x16 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
Layer 2	**Input**	**Layer 2**	**Output**
1	6	1	6
2	7	2	7
3	8	3	8
4	9	4	9
5	10	5	10
Layer 3	**Input**	**Layer 3**	**Output**
1	11	1	11
2	12	2	12
3	13	3	13
4	14	4	14
5	15	5	15

In-/Output 16 is not in use in this router setup (3 router layers, based on a 16x16 router).

− **3 layers, based on a 32x32 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
3	3	3	3
…	…	…	…
10	10	10	10
Layer 2	**Input**	**Layer 2**	**Output**
1	11	1	11
2	12	2	12
3	13	3	13
…	…	…	…
10	20	10	20
Layer 3	**Input**	**Layer 3**	**Output**
1	21	1	21
2	22	2	22
3	23	3	23
…	…	…	…
10	30	10	30

> In-/Outputs 31 and 32 are not in use in this router setup (3 router layers, based on a 32x32 router).

– **4 layers, based on an 8x8 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
Layer 2	**Input**	**Layer 2**	**Output**
1	3	1	3
2	4	2	4
Layer 3	**Input**	**Layer 3**	**Output**
1	5	1	5
2	6	2	6
Layer 4	**Input**	**Layer 4**	**Output**
1	7	1	7
2	8	2	8

– **4 layers, based on a 16x16 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
Layer 2	**Input**	**Layer 2**	**Output**
1	5	1	5
2	6	2	6
3	7	3	7
4	8	4	8
Layer 3	**Input**	**Layer 3**	**Output**
1	9	1	9
2	10	2	10
3	11	3	11
4	12	4	12
Layer 4	**Input**	**Layer 4**	**Output**
1	13	1	13
2	14	2	14
3	15	3	15
4	16	4	16

– **4 layers, based on a 32x32 router:**

Layer 1	Input	Layer 1	Output
1	1	1	1
2	2	2	2
…	…	…	…
8	8	8	8

Layer 2	Input	Layer 2	Output
1	9	1	9
2	10	2	10
…	…	…	…
8	16	8	16
Layer 3	**Input**	**Layer 3**	**Output**
1	17	1	17
2	18	2	18
…	…	…	…
8	24	8	24
Layer 4	**Input**	**Layer 4**	**Output**
1	25	1	25
2	26	2	26
…	…	…	…
8	32	8	32

3.3   SW7: Power alarm

The power alarm can be switched according to the following pattern:

SW 7	Power alarm
OFF	Disables Power Alarm
ON	Enables Power Alarm

Default setting is Power Alarm disabled.

> Changing this from default setting should only be done when using two (redundant) power supplies.

3.4   SW8: Power-up mode

Switch 8 on the configuration switch defines the power up mode on NxN square routers. The MatrixPRO-II router provides two modes for powering up the system.

The power up options can be switched according to the following pattern:

SW 8	Power Up mode
OFF	Switches all outputs according to the buffered information in the routers processor system.
ON	Switches all outputs to input 1.

Default setting switches all outputs according to the buffered information in the routers processor system.

3.5   Switching time

Switching is performed according to the detected sync reference signal. Switching time is determined by the synchronization signal that feeds the router. This is useful when the video signal has the same format as the synchronization signal. Supported formats are: PAL, NTSC, 750/50p, 750/60p, 1125/50i and 1125/60i.

3.6   Configuring protocol options

TCP/IP

This is the default option for the *Barco MatrixPRO-II HD/3G SDI routers. Selecting this protocol* disables the RS-232 port of that device.

RS232

The serial protocol can be selected from the configurator software. *Selecting the RS232 protocol* disables the Ethernet port of that device.

> **Default IP Address: 192.168.0.245 - Port: 4381**

> **RS-232 parameters:**
> -   **Bit rate: 19200 bit/s**
> -   **Data bits: 8**
> -   **Stop bits: 1**
> -   **Parity: no parity**

> **Connection to the router will be lost after 20 seconds of inactivity**

4   LED status indication

4.1   Start-up

The LED located at the front of the router indicates the status of the router. At start-up, the LED will alternate between red (R) and green (G) every 500ms for about two seconds. After the start-up sequence the LED will indicate the Alarm state of the router.

There are two LEDs located at the Ethernet bus. At start-up the boot loader is searching for update commands on the serial port for about two seconds. During this sequence both Ethernet LEDs will be blinking. After the start-up sequence the LEDs will indicate the Ethernet state.

4.2   Alarm states

The LED can either be red (R), green (G), yellow (Y) or have no light (N).

The LED state is here described with twenty letters, each representing 100ms, which totals to an alarm sequence of two seconds. The X indicates that the LED keeps the color it has the moment the alarm sequence begins (green, yellow or no light).

Description	LED state	Alarm	Comment
Continuous green light	GGGGG GGGGG GGGGG GGGGG	No alarm. Status is OK.	
Continuous yellow light	YYYYY YYYYY YYYYY YYYYY	Unable to connect to controller over Ethernet.	This alarm will be overwritten by other alarms
Long red blinks	RRRRR NNNNN RRRRR NNNNN	Power is too low.	
One short red blink	RXXXX XXXXX XXXXX XXXXX	Power A failed	Only active if power alarm dip is set.
Two short red blinks	XXXXX XXXXX RXRXX XXXXX	Power B failed	Only active if power alarm dip is set.

4.3   Ethernet states

The LEDs that are located at the Ethernet bus will after the Start-up sequence indicate the Ethernet states:

	On	Off / Blinking
Green	Valid link	No link
Yellow	No data	Data is transmitted or received

5   Router communication

You gain access to router for communication purposes by connecting either the router's serial port to your computer or by using an Ethernet connection.

> Do not use both the router's Ethernet port and RS-232 serial port at the same time. Doing so may cause loss of important communication and control data.

5.1   Serial connection

Connection can by be made through the serial port(s) of the router;

The communication parameters are configurable. Please refer to the protocol documentation of the appropriate communication/control protocol.

Example: The protocol parameters *s* are as follows:

– Bit rate 19200 bit/s
– Data bits 8 bits
– Stop bits 1
– Parity: No parity

The DB9 female connector for the serial port(s) of the router has the following pin-out:

Pin #	RS-232 mode
1	*Not in use*
2	Tx
3	Rx
4	*Not in use*
5	GND
6	GND
7	RTS
8	CTS
9	*Do Not Connect!*

> Note that if the standard RS-232 cable specification (DCE) is followed:
>
> A cable with Male+Male or Female+Female connectors at the cable ends is used for Rx/Tx crossed connection, and
>
> A cable with Male+Female connectors at the cable ends is used for a straight through connection.

5.1.1   Maximum cable length (RS-232)

IEEE has specified the maximum cable length for an RS-232 connection to 15m. Longer distances can be installed depending on the environmental conditions of the installation site.

5.2   Ethernet connection

The connections follow the standard set by the IEEE 802.3 100BaseTX specification. The cables that are to be applied should be CAT-5 / CAT-5E standard, or better. It is the responsibility of the installer / user to secure a proper installation of the Ethernet connection.

All Barco MatrixPRO-II routers and IP-based Control Panels are connected together through an Ethernet Switch.

A Barco MatrixPRO-II device has only one physical Ethernet connection. If redundant control is required, this limitation has to be solved by the control system.

The default IP address is: 192.168.0.245 port: 4381

Connection to the router will be lost after 20 seconds of inactivity

6   Control Panel operation

6.1   Button description

A/V Toggle

The A/V Toggle button enables/disables audio and video on a specified address. The address can either be read from the dip switches, or be fixed. The button toggles between three states.

> If the button is pressed for more than 1 second, it will go into a fourth state where both audio and video are disabled.

In this state the button will be dimmed. If the button is pressed for more than 1 second again, it will enable both audio and video if present.

Button Color	Video Enabled	Audio Enabled
Yellow	Yes	Yes
Green	Yes	No
Red	No	Yes
Dimmed	No	No

If neither audio nor video is present, it will be marked as disabled and the toggle state will not be used.

Toggle status changes will be stored in flash and used when the panel is powered up later.

> When a panel is powered on it will search for connected routers. If no routers are found the A/V Toggle button will be disabled (no light in the button).
>
> *This can happen if the panel is powered up before any routers are connected or if there is something wrong with the cabling*.
>
> To re-enable the A/V Toggle do the following:
>
> 1. Activate the *Panel Enable* button (Green light).
>
> 2. Push & Hold the A/V Toggle-button for 2 seconds.
>
> The A/V Toggle-button should now be activated and the light turned on.

Panel Enable

If a Panel Enable button is present, the panel will start up not enabled. In this state the button will be red and all the other buttons will be disabled. When pressing the button the panel will be enabled and the color will change to green. A status request will also be sent to get information on active levels.

If no Panel Enable button is present, the panel will start up enabled.

Take on/off

The Take on/off button enables or disables the Take button. If no take button is defined, Take on/off is always off. On first start-up the take button is enabled. Later it will read the last status from the flash memory.

Take

The Take buttons LED is normally off. If the Take on/off button is set to "on", no commands will be sent from the panel until the Take button is pressed. The last selected buttons and the take button will blink, until the Take button is pressed and the command is sent from the panel.

Output

An Output button is used for selecting an output. Selecting an output activates it, so that it is switched to the next input that is selected.

Input

An Input button switches the active output to the selected input. If the Take button is enabled, the switch will not be executed until the Take button is pressed.

When switching using the Input button, all enabled audio- and video-levels will be switched from the selected input to the active output.

7 Environmental Specifications

1. The equipment will meet the guaranteed performance specification under the following environmental conditions:
    - Operating room temperature range: 0°C to 45°C
    - Operating relative humidity range: <95% (non-condensing)

2. The equipment will operate without damage under the following environmental conditions:
    - Temperature range: -10°C to 55°C
    - Relative humidity range: <95% (non-condensing)

Appendix A

A.1 Materials declaration

For product sold into China after 1st March 2007, we comply with the "Administrative Measure on the Control of Pollution by Electronic Information Products". In the first stage of this legislation, content of six hazardous materials has to be declared. The table below shows the required information.

組成名稱 Part Name	Toxic or hazardous substances and elements					
	鉛 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
All products referred to in Chapter 1.1	O	O	O	O	O	O
SL-PWR-40 / SL-PWR-90	O	O	O	O	O	O
O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006. X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.						

Parts without any of the above mentioned hazardous substances are indicated by the product marking:

A.2 Recycling information

Please contact Barco's Customer Support for assistance with recycling if this site does not show the information you require.

Where it is not possible to return the product to Barco or its agents for recycling, the following general information may be of assistance:

– Before attempting disassembly, ensure the product is completely disconnected from power and signal connections.
– All major parts are marked or labeled to show their material content.
– Depending on the date of manufacture, this product may contain lead in solder.
– Some circuit boards may contain battery-backed memory devices.

A.3 Declarations of Conformity

DESCRIPTION	3G/HD/SD-SDI Video Routers in the Barco MatrixPRO-II series
DIRECTIVES this equipment complies with	LVD 73/23/EEC EMC 2004/108/EEC
HARMONISED STANDARDS applied in order to verify compliance with Directive(s)	EN 55103-1:1996 EN 55103-2:1996

Appendix B Remote Commands

	Description
x	X-point Take.
ls	Status X-point – level.
ping	Router ping.
llist	Level list

Default Address: 192.168.0.245 port: 4381

Connection to the router will be lost after 20 seconds

B.1 X-Point Take

This command directly takes the specified X-point. The command specifies which sources to connect to which destinations and on what levels. Several X-point takes can be specified on a single command line. In such cases all specified X-points are taken simultaneously.

Command:

x <X-points>[: <group_no>][*CC]<LF>

<LF>

Response:

%<LF>

x l<level> <src> <dest><LF>

[*CC<LF>]

<LF>

Where:

<X-points>=<X-point>[<X-points>]

<X-point>=l<levels> <src_dest_pairs>

<src_dest_pairs>=<src_dest_pair>[<src_dest_pairs>]

<src_dest_pair>=<src> <dests>

<levels>={<level>|<levels>,<levels>|<level>-<level>}

<dests>={<dest>|<dests>,<dests>|<dest>-<dest>}

<level>	The level number.	
<src>	Source number in the range from zero to one less than the number of inputs on the level. <src> can also be one of the following characters:	
	d	Disconnect. Used when a destination is not connected to any source.
	o	Out of range. Used when a destination is connected to a source not included in a level. This may occur with overlapping partitions. Only valid in the response.
	u	Undefined/Unknown. This might be used at start-up before the status is read from the physical router. It is also used on ported routers where a port can be used as an input or an output. Only valid in the response.
<dest>	Destination number in the range from zero to one less than the number of outputs on the level.	

A single X-point Take command can switch multiple X-points. You will however receive one response for each X-point that is switched.

Example:

Command	Echo	Desired action
X l1 1 12	X l1 1 12	Switch input 1 to output 12 in level 1

B.2 Request X-Point Status

This command is used to requests the X-point status of all destinations on a specified level.

Command:

s l<level1> [*CC]<LF><LF>

Response:

%<LF>

x l<level> <src> <dest><LF>

[x l<level> <src> <dest><LF> ...]

[*CC<LF>]

<LF>

Example:

Command	Echo	Desired action
s l1	X l1 15 0 X l1 15 1 X l1 15 2 X l1 15 3 X l1 15 4 X l1 15 5 X l1 15 6 X l1 15 7 X l1 15 8 X l1 15 9 X l1 15 10 X l1 15 11 X l1 15 12 X l1 15 13 X l1 15 14 X l1 15 15	Report x-point status in level 1

B.3 Router Ping

This command is used to check if the router is still responding.

Command:

ping[*CC]<LF><LF>

Response:

? "ping"<LF>

pong<LF>

[*CC<LF>]

<LF>

Example:

Command	Echo	Desired action
ping	pong	

B.4 Level List

This command is used to the get list of all levels in the system.

Command:

llist <LF><LF>

Response:

? "llist" <LF>

l<level> <size> <format> "<description>"<LF>

[l<level> ...]

[*CC<LF>]

<LF>

Example:

Command	Echo	Desired action
llist	L1 16x16 Video-3GHD-SDI "Video Level"	Provide the list in level 1

Appendix C Barco MPII-3G Configuration Tool

The Barco MPII-3G Tool is a software utility that allows the user to:

- Read the IP settings
- Modify and Save IP settings
- Switching the communication between Ethernet and the serial RS-232 protocols